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FORM PTO-1390 (REV. 11-2000) U S DEPARTM COMMERCE PATENT AND TRADEMARK OFFICE RNEY'S DOCKET NUMBER

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

3711-000116

U S APPLICATION NO (If known, see 37 CFR 1 5) 09/937807

INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
PCT/EP00/02822	30 March 2000 (30.03.00)	02 April 1999 (2.04.99)

TITLE OF INVENTION SPRAYING EQUIPMENT

JC14 Rec'd PCT/PTO 26 SEP 2001

APPLICANT(S) FOR DO/EO/US ANNONIER, Claude; NUFFER, Sebastien and MALLARACH CAPDEVILA, Juan

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. [X] This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. [ ] This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. [ ] This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below.
4. [X] The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. [X] A copy of the International Application as filed (35 U.S.C. 371(c)(2))
   a. [X] is attached hereto (required only if not communicated by the International Bureau).
   b. [X] has been communicated by the International Bureau.
   c. [ ] is not required, as the application was filed in the United States Receiving Office (RO/US).

[ ] An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
   a. [ ] is attached hereto.
   b. [ ] has been previously submitted under 35 U.S.C. 154(d)(4).

[ ] Amendments to the claims of the International Aplication under PCT Article 19 (35 U.S.C. 371(c)(3))
   a. [ ] are attached hereto (required only if not communicated by the International Bureau).
   b. [ ] have been communicated by the International Bureau.
   c. [ ] have not been made; however, the time limit for making such amendments has NOT expired.
   d. [ ] have not been made and will not be made.

[ ] An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371 (c)(3)).

[ ] An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).

[ ] An English lanugage translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11 to 20 below concern document(s) or information included:

11. [X] An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. [ ] An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. [X] A FIRST preliminary amendment.
14. [ ] A SECOND or SUBSEQUENT preliminary amendment.
15. [ ] A substitute specification.
16. [ ] A change of power of attorney and/or address letter.
17. [ ] A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.
18. [ ] A second copy of the published international application under 35 U.S.C. 154(d)(4).
19. [ ] A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
20. [X] Other items or information:

Application Data Sheet, Form 1449 with copies of references cited thereon (4 US, 1DE, 1EP, 1WO & International Search Report PCT/EP00/02822), copy of International Preliminary Examination Report and Annexes and return postcard.

JC05 Rec'd PCT/PTO 26 SEP 2001

U S APPLICATION NO (if known, see 37 CFR 1.5) 09/937878 | INTERNATIONAL APPLICATION NO PCT/EP00/02822 | ATTORNEY'S DOCKET NUMBER 3711-000116

	CALCULATIONS PTO USE ONLY
21. [X] The following fees are submitted:	
BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)):	
Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO **$1000.00**	
International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO **$860.00**	
International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO **$710.00**	
International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) **$690.00**	
International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) **$100.00**	
ENTER APPROPRIATE BASIC FEE AMOUNT =	$ 860.00
Surcharge of **$130.00** for furnishing the oath or declaration later than [ ] 20 [ ] 30 months from the earliest claimed priority date (37 CFR 1.492(e)).	$ 0.00

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	
Total claims	8 - 20 =	0	x **$18.00**	$ 0.00
Independent claims	1 - 3 =	0	x **$80.00**	$ 0.00
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ **$270.00**	$ 0.00
TOTAL OF ABOVE CALCULATIONS =				$ 860.00
Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2.			+	$ 0.00
SUBTOTAL =				$ 860.00
Processing fee of **$130.00** for furnishing the English translation later than [ ] 20 [ ] 30 months from the earliest claimed priority date (37 CFR 1.492(f)).				$ 0.00
TOTAL NATIONAL FEE =				$ 860.00
for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). **$40.00** per property +				$ 0.00
TOTAL FEES ENCLOSED =				$ 860.00
			Amount to be refunded:	$
			charged:	$

a. [X] A check in the amount of $ 860.00 to cover the above fees is enclosed.

b. [ ] Please charge my Deposit Account No. _____ in the amount of $ _____ to cover the above fees. A duplicate copy of this sheet is enclosed.

c. [X] The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 08-0750. A duplicate copy of this sheet is enclosed.

d. [ ] Fees are to be charged to a credit card. **WARNING:** Information on this form may become public. **Credit card information should not be included on this form.** Provide credit card information and authorization on PTO-2038.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137 (a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO

W. R. Duke Taylor
Harness, Dickey & Pierce, P.L.C.
P. O. Box 828
Bloomfield Hills, Michigan 48303
United States of America

SIGNATURE

W. R. Duke Taylor
NAME

31,306
REGISTRATION NUMBER

Dated: SEPT 26, 2001

PATENT

#4/a

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.:	Not yet assigned
Filing Date:	Not yet assigned
Applicant:	ANNONIER, et al.
Title:	SPRAYING EQUIPMENT
Attorney Docket:	3711-000116

Box Patent Applications
Hon. Commissioner of Patents and Trademarks
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Sir:

Applicants herewith submit this Preliminary Amendment to the application filed herewith, for consideration prior to the calculation of the filing fee, as follows:

IN THE CLAIMS

Please amend claims 5 – 8 in accordance with the following rewritten claims in clean form. Applicant includes herewith an Attachment for Claim Amendments showing a marked up version of each amended claim.

CLAIMS

5. (AMENDED) A device according to claim 1, characterised in that there are several said further containers communicating with a common said mixer (6);

a'

- and in that the control means modulates the proportional flow rate of each of the different additives in response to the amount of solid product.

6. (AMENDED) A device according to claim 1, characterised in that a flow of

gas is provided to the spraying means to assist the spraying at a constant rate.

7. (AMENDED) A device according to claim 1, characterised in that, in use of the device, liquid is pumped by the diluent pump (3) from the diluent container (1) as far as a diluent flow meter (4) and then introduced into the associated diluent regulation valve (5) before being introduced into the mixer (6);

- in that liquid is pumped by the or each additive pump (3) from the additive container (2) as far as a flow meter (4) for the additive and then introduced into an additive regulation valve (5) before being introduced into the mixer (6);

- and in that the mixture of diluent(s) and additive is sprayed by an injector (7) with a constant flow rate assisted by a flow of air (8).

8. (AMENDED) A device according to claim 1, characterized by several spraying systems (7) each able to be adapted to the throughput of solid product.

REMARKS

Claims 1 – 8 remain pending in the application. Claims 5 – 8 have been amended.

The purpose of this preliminary amendment is to remove multiple dependent claims from the application to reduce filing costs. Consideration of the application as amended is requested. It is submitted that this Amendment places the application in suitable condition for allowance; notice of which is requested.

Respectfully submitted,

Dated: SEPT 26, 2001

By: W.R.Duke

W. R. Duke Taylor
Attorney for Applicants
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Harness, Dickey & Pierce
P. O. Box 828
Bloomfield Hills, MI 48303

ATTACHMENT FOR SPECIFICATION AMENDMENTS

The following is a marked up version of each replacement paragraph and/or section of the specification in which underlines indicates insertions and brackets indicate deletions.

5. (AMENDED) A device according to claim 1 [any one of claims 1 to 4], characterised in that there are several said further containers communicating with a common said mixer (6);

- and in that the control means modulates the proportional flow rate of each of the different additives in response to the amount of solid product.

6. (AMENDED) A device according to claim 1 [any of claims 1 to 5], characterised in that a flow of gas is provided to the spraying means to assist the spraying at a constant rate.

7. (AMENDED) A device according to claim 1 [any one of claims 1 to 3], characterised in that, in use of the device, liquid is pumped by the diluent pump (3) from the diluent container (1) as far as a diluent flow meter (4) and then introduced into the associated diluent regulation valve (5) before being introduced into the mixer (6);

- in that liquid is pumped by the or each additive pump (3) from the additive container (2) as far as a flow meter (4) for the additive and then introduced into an additive regulation valve (5) before being introduced into the mixer (6);

- and in that the mixture of diluent(s) and additive is sprayed by an injector (7) with a constant flow rate assisted by a flow of air (8).

8. (AMENDED) A device according to claim 1 [any one of claims 1 to 5],

characterized by several spraying systems (7) each able to be adapted to the throughput of solid product.

SPRAYING EQUIPMENT

The present invention relates to a novel piece of equipment for spraying a liquid additive composition onto a solid product, for example a foodstuff. It relates more particularly to apparatus which allows homogeneous spraying of very small amounts of a liquid constituent onto relatively large amounts of solid product.

The term "solid product" as used herein is intended to embrace a product in the form of pellets, or in the form of a crumble, or in the form of a powder which can be used to form a mash feed.

A preferred application of the present invention relates to apparatus for spraying liquid food additives which are to be present in the foodstuff in small weight amounts and which consist essentially of enzymes and/or vitamins and/or carotenoids. The said additives are often added in very small quantities of the order of a few tens or hundreds of grams per ton of foodstuffs.

In the prior art there are various examples of mixing additives to a major constituent, for example in US-A-4108335, US-A-5516625 and DE-A-4413249.

Where the major constituent receiving the additive minor constituent is in solid form it has been proposed previously to dilute the additive in a carrier liquid, for example as proposed in WO-A-97/16964. Another example of dilution of the additive is disclosed as one optional possibility in Patent EP 789291, where there is described apparatus comprising:

- one or more thermostatted containers which contain the enzyme which may be in pre-diluted form;
- a system for extracting the liquid enzyme from its container;
- a flow regulation valve;
- a flow meter with high sensitivity;
- an injection system which has an adjustable angle of atomization; and
- a microprocessor-controlled electronic system

for regulating the dose of the liquid enzyme.

Although this spraying system, which is very efficient and has been used commercially for many years, allowed the introduction of a liquid food additive which might be in pre-diluted form, it was not constructed with a view to allowing continuous variation of dilution. With use it appeared that this system was not perfectly adapted for enzymes which had to be introduced at different concentrations, or for the introduction of several different constituents which are mutually incompatible, whether from a physical or chemical point of view.

Thus, the introduction of additives such as enzymes in aqueous solution could not be carried out with the concomitant introduction of additives in lipid form such as the vitamins A or E, or proteases could not be introduced with protein enzymes.

In the prior system, the dilution of the enzyme was determined in advance and the quantity of diluted enzyme was adjusted by the microprocessor-controlled flow meter to be related to the amount of foodstuff which passed on a conveyor belt. With this system, there was a constant adaption of the flow rate of the spraying flow to the amount of dry foodstuffs transported by the conveyor belt.

However, it has now been found, unexpectedly, that it is easier and more advantageous to adapt the dilution of the additive in the diluent (water) both to the amount of dry foodstuffs transported by a conveyor belt and to the flow of the additive so as to keep the total spraying flow constant for a constant flow rate of dry foodstuffs.

Thus, the present invention relates to a device for spraying an additive diluted with a diluent therefor, consisting of:

- a diluent container;
- a further container for a said additive;
- at least one mixer;
- conduits communicating said diluent container and

additive container with said mixer for allowing the dilution of the additive by the diluent from said diluent container;

- spraying means connected to receive the output from said at least one mixer with a constant flow rate and to spray it at a spray zone; and

- means for transporting a solid product to said spray zone to receive the additive;

- wherein in said conduits there is a respective regulation valve per liquid associated with the first mentioned and further containers; there are dilution control means for controlling said regulation valves to control the rates of flow of the diluent and additive to said mixer, said dilution control means being responsive to the flow of solid product being conveyed by said transporting means to control the rate of flow of the additive in proportion to the flow of solid product, and being effective to vary the flow of diluent in response to the desired total flow rate of liquid to said spraying means to maintain a constant total flow rate;

- characterised in that the spray nozzle is aimed towards a conveyor for a solid product to be sprayed, and in that the control means are in the form of a microprocessor responsive to the weight of solid product present on the conveyor.

The present invention preferably employs static mixers.

The transporting means may be a conveyor and the regulation valves may be managed by a microprocessor which, according to the weight of solid product present on the conveyor where the additive/ diluent mixture is sprayed, modulates the proportional flow rate of the different additives and diluent in such a way as to maintain a spraying flow rate which is constant and proportional to the weight of solid product.

If, according to Figure 1, the flow is followed starting from the water container(1), the liquid is pumped by the pump (3) as far as the flow meter (4), then is introduced into a regulation valve (5) before being introduced into the mixer (6).

If the flow is followed starting from the first additive container (2), the liquid is pumped by the pump (3) as far as the flow meter (4), then is introduced into a regulation valve (5) before being introduced into the mixer (6). This is the case for each further additive.

The mixture of water and several different additives is sprayed by an injector (7) with a constant flow rate assisted by a flow of air (8) on a flow of granules. Although the granules may be travelling on a conveyor, e.g. a horizontal belt conveyor it is preferable for them to be sprayed while dropping vertically from a pelleting chiller. Any other transport means for the solid product can be used.

When several of the additives cannot be mixed together in the aqueous flow, several spraying systems may be individually adapted to the throughput of the apparatus, so as to give a variable application of each additive to the solid product, while maintaining optimum flow through the spray nozzle. It is evident that, even if the additives are mutually compatible, it may be advantageous to adapt several spraying nozzles to the outlet of the apparatus.

The advantages of the present device are as follows:

- homogeneous distribution of the liquid additive(s) onto the foodstuff
- regulation of the flow rate of one of the additives without necessarily disturbing the functioning of the atomization nozzle
- conformity with the statutory demands on premixed additives
- mixing of mutually unstable products.

It has been found that with the system of the present invention it is possible to achieve a wide variation in the flow rates of the various liquids, and a precisely controlled application rate of the at least one additive to the solid product. For example, the

application rate of any one of the additives can be in the range of from 1 litre to 15 litres per hour, and as an example it is possible for two separate additives to be introduced to the diluent water flow, one at the rate of 1 litre per hour and the other at a flow rate of 15 litres per hour.

In order to maintain optimum flow conditions at the spray nozzle, the flow of water will be selected so as to provide the required flow rate which may be in the range of from 20 - 100 litres per hour per spray nozzle.

Using such values, it is possible to achieve a homogeneous application of from 0.5 to 1 litre of an additive per tonne of solid foodstuff granules passing through the apparatus.

Although throughout the present application there is reference to a solid product to which the additive/diluent mixture is applied, this is intended to denote that the product is not flowable, and in the preferred use of the apparatus the solid product will be a dry product, preferably in granular form.

CLAIMS

1. A device for spraying an additive diluted with a diluent therefor, consisting of:

- a diluent container (1);
- a further container (2) for a said additive;
- at least one mixer (6);
- conduits communicating said diluent container and additive container (1 and 2) with said mixer (6) for allowing the dilution of the additive by the diluent from said diluent container (1);
- spraying means (7) connected to receive the output from said at least one mixer with a constant flow rate and to spray it at a spray zone; and
- means for transporting a solid product to said spray zone to receive the additive;
- wherein in said conduits there is a respective regulation valve (5) per liquid associated with the first mentioned and further containers (1, 2); there are dilution control means for controlling said regulation valves (5) to control the rates of flow of the diluent and additive to said mixer, said dilution control means being responsive to the flow of solid product being conveyed by said transporting means to control the rate of flow of the additive in proportion to the flow of solid product, and being effective to vary the flow of diluent in response to the desired total flow rate of liquid to said spraying means to maintain a constant total flow rate;
- characterised in that the spray nozzle is aimed towards a conveyor for a solid product to be sprayed, and in that the control means are in the form of a microprocessor responsive to the weight of solid product present on the conveyor.

2. A device according to claim 1, characterised in that one or more conduits connecting a diluent container or an additive container to a mixer are associated with

respective flow meters.

3. A device according to claim 1, characterised in that there are several additive containers (2) connected to said mixer, each said additive container being associated with a respective additive flow meter (4) and additive flow regulation valve (5)

4. A device according to claim 1, characterised in that the or each mixer is a static mixer.

Sub A1

5. A device according to any one of claims 1 to 4, characterised in that there are several said further containers communicating with a common said mixer (6);

- and in that the control means modulates the proportional flow rate of each of the different additives in response to the amount of solid product.

6. A device according to any of claims 1 to 5, characterised in that a flow of gas is provided to the spraying means to assist the spraying at a constant rate.

7. A device according to any one of claims 1 to 3, characterised in that, in use of the device, liquid is pumped by the diluent pump (3) from the diluent container (1) as far as a diluent flow meter (4) and then introduced into the associated diluent regulation valve (5) before being introduced into the mixer (6);

- in that liquid is pumped by the or each additive pump (3) from the additive container (2) as far as a flow meter (4) for the additive and then introduced into an additive regulation valve (5) before being introduced into the mixer (6);

- and in that the mixture of diluent(s) and additive is sprayed by an injector (7) with a constant flow rate assisted by a flow of air (8).

8. A device according to any one of claims 1 to 5, characterised by several spraying systems (7) each able to be adapted to the throughput of solid product.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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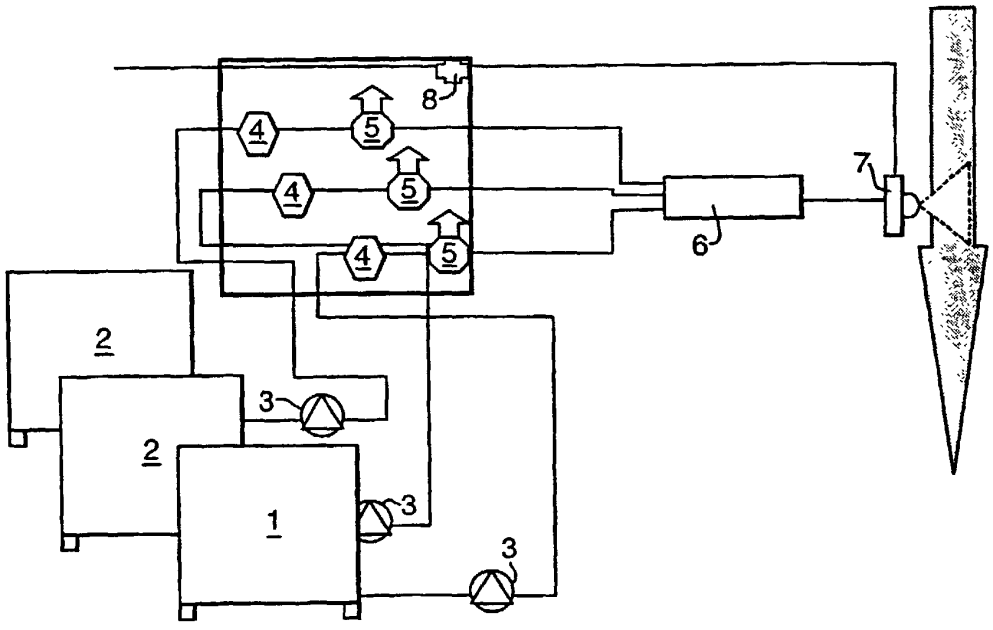
(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: SPRAYING EQUIPMENT



(57) Abstract: The present invention relates to a novel piece of equipment for spraying a liquid composition onto a solid product e.g. a foodstuff which may be in the form of pellets, a crumble, a powder to form a mash. It relates more particularly to apparatus which allows homogeneous spraying of very small amounts of a liquid constituent onto relatively large amounts of the solid product.

WO 00/59321 A1

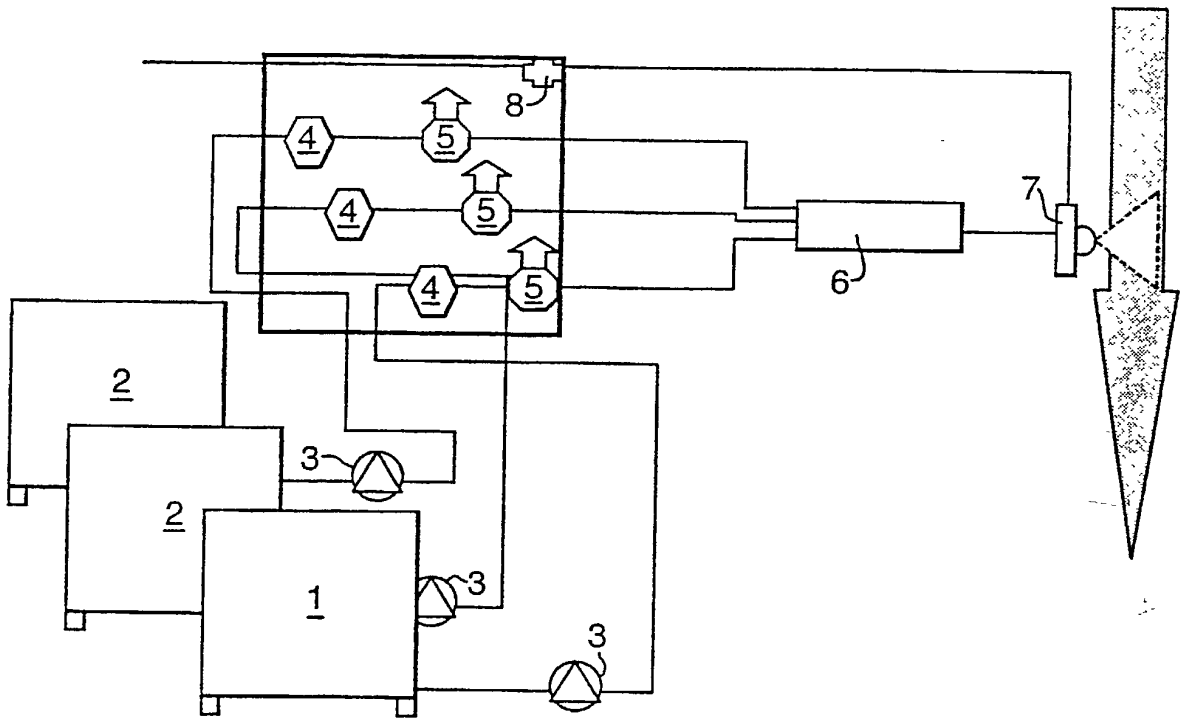
WO 00/59321 A1

Published:
— *With international search report*
— *With amended claims*

Date of publication of the amended claims: 18 January 2001

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Fig.1.



Attorney's Docket No.

RULE 63 (37 C.F.R. § 1.63)
DECLARATION AND POWER OF ATTORNEY
FOR PATENT APPLICATION
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

As below named inventor(s), I/we hereby declare that

This declaration is of the following type:

- [ ] original
- [ ] design
- [ ] supplemental
- [X] national stage of PCT
- [ ] divisional
- [ ] continuation
- [ ] continuation-in-part

My/our residence, post office address and citizenship are as stated below next to my/our name.

I/we believe I/we am/are the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

SPRAYING EQUIPMENT

the specification of which (check one)

- [ ] is attached hereto
- [ ] was filed on _____
  in the United States Patent and Trademark Office as Application Serial No. _____
  and was amended on _____ *(if applicable)*
- [ ] was described and claimed in PCT International Application No. PCT/EP00/02822
  filed on 30 Mar 2000
  and as amended under PCT Article 19 on _____ *(if any)*

I/we hereby state that I/we have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I/we acknowledge the duty to disclose information which is material to patent ability as defined in 37 C.F.R. § 1.56.

I/we hereby claim foreign priority benefits under 35 U.S.C §119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate or under § 365(a) of any PCT International Application(s) which designated at least one country other than the United States of America, listed below and have also identified below any foreign application for patent or inventor's certificate or PCT International Application having a filing date before that of the application on which priority is claimed:

COMBINED DECLARATION AND POWER OF ATTORNEY

PRIOR FOREIGN/PCT APPLICATION(S) AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. §119

Application No.	Country	Filing Date	Priority Claimed	
			Yes	No
9904143	FR	2 Apr 1999	X	
PCT/EP00/02822		30 Mar 2000		

I/we hereby claim the benefit under 35 U.S.C. § 119(e) of any United States Provisional Application(s) listed below:

UNITED STATES PROVISIONAL APPLICATION(S)

Application No.	Filing Date

I/we hereby claim the benefit under 35 U.S.C. § 120 of any United States Application(s) or § 365(c) of any PCT International Application(s) designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International Application in the manner provided by the first paragraph of 35 U.S.C. § 112, I/we acknowledge the duty to disclose information which is material to patentability as defined in 37 C.F.R. § 1.56 which became available between the filing date of the prior application and the national PCT international filing date of this application.

PRIOR UNITED STATES/PCT INTERNATIONAL APPLICATION(S)

Application No.	Filing Date	Status (patented, pending/abandoned)
PCT/EP00/02822	30 Mar 2000	

I hereby appoint Ronald W. Wangerow, Reg. No. 29,597, and each principal, attorney of counsel, associate and employee of Harness, Dickey and Pierce, P.L.C., who is a registered Patent Attorney, my attorney with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith. I request the Patent and Trademark Office to direct all correspondence and telephone calls relative to this application to Harness, Dickey & Pierce, P.L.C., P.O. Box 828, Bloomfield Hills, Michigan 48303 Tel: (810) 641-1600.

I/we hereby declare that all statements made herein of my/our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C § 1001 and that such willful false statements may jeopardise the validity of the application or any patent issued thereon.

Customer No. 27572
Harness, Dickey & Pierce, P.L.C.

COMBINED DECLARATION AND POWER OF ATTORNEY

100

Inventors Signature _____ Date 15/04/02

Full name of first/sole inventor: Claude ANNONIER

Citizenship: France

Residence(City): 92160 Antony France FRY

Post Office Address: Aventis Animal Nutrition S.A. 42 Avenue Aristide Briande 92160 Antony France

200

Inventors Signature _____ Date M-IV-2002

Full name of 2nd inventor: Sébastien NUFFER

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